

REMARKS

In view of the above amendment, Applicants believe the pending application is in condition for allowance. Claims 1-21 are now present in this application, of which claims 1, 2, and 6 are independent. By this amendment, claims 1, 2, 5 and 6 have been amended.

Reconsideration of this application, as amended, is respectfully requested.

Examiner Interview

Applicants thank the Examiner for the courtesies extended to Applicants' representative during the telephone interview conducted on April 2, 2009 to discuss the Examiner's assertion that the independent claims did not require that the pins contact the sheave surfaces. In particular, the Examiner indicated that the language "being operable to transmit power by way of contact by opposite end surfaces of the pins and the sheave surfaces of the first and second pulleys" was not a structural limitation. During the telephone interview, Applicants representative suggested amending the claims to recite "the power transmission chain transmitting power by way of contact between opposite end faces of the each of the pins and the sheave surfaces of the first and second pulleys." The Examiner agreed that such a limitation would be a structural limitation that would have to be addressed. The claims have been amended in the manner discussed during the interview.

Rejection Under 35 U.S.C. § 112, 1st Paragraph

Claims 6-10 and 18-20 stand rejected under 35 U.S.C. § 112, 1st Paragraph, as failing to comply with the enablement requirement. This rejection is respectfully traversed.

The Examiner states that the claims contain subject matter which was not describe in the specification in such a way as to enable one skilled in the art to make and/or use the invention.

In order to overcome this rejection, Applicants have amended claim 6 to recite "the plurality of first pins includes pins of two or more different widths in the chain longitudinal direction such that the first pins and the second pins are combined to form two or more types of pairs which provide involutes of base circles having different radii." Applicants submit that

because the plurality of first pins includes pins having two or different widths, the combination of a first pin and a second pin will provide two or more combination of pins (e.g., types of pairs).

Applicants respectfully submit that the claims, as amended, are fully enabled by the specification and drawings. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Rejection Under 35 U.S.C. § 112, 2nd Paragraph

Claims 5, 6-10, and 18-20 stand rejected under 35 U.S.C. § 112, 2nd Paragraph. This rejection is respectfully traversed.

The Examiner has set forth certain instances wherein the claim language lacks antecedent basis.

In order to overcome this rejection, Applicants have amended claims 5 and 6 to correct each of the deficiencies specifically pointed out by the Examiner. Applicants respectfully submit that the claims, as amended, particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Rejections Under 35 U.S.C. §§ 102 and 103

Claims 1-3, 5, 11, 12, 15, 16, and 21 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Van Rooij; claims 1-3, 5, 11, 12, 15, and 16 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Anpo; claims 4, 13, 14, and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Anpo in view of Zimmer; claims 4, 13, 14, and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Van Rooij in view of Zimmer; and claims 6-10 and 18-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Van Rooij in view of Anpo. These rejections are respectfully traversed.

Complete discussions of the Examiner's rejections are set forth in the Office Action, and are not being repeated here.

While not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the instant application, Applicants respectfully submit that independent claim 1 has

been amended to recite a combination of elements in a power transmission chain entrainable between a first pulley possessing conical sheave surfaces and a second pulley possessing conical sheave surfaces, the power transmission chain including a plurality of links each possessing through-holes, and a plurality of pins inserted through the through-holes for interconnecting the plurality of links, the power transmission chain transmitting power by way of contact between opposite end faces of the each of the pins and the sheave surfaces of the first and second pulleys. All the plurality of pins substantially have the same length in the longitudinal direction thereof, and the plurality of pins include plural types of pins having different rigidities in the longitudinal direction thereof.

Similarly, while not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the instant application, Applicants respectfully submit that independent claim 2 recites a combination of elements in a power transmission chain entrainable between a first pulley possessing conical sheave surfaces and a second pulley possessing conical sheave surfaces, the power transmission chain including a plurality of links, and a plurality of pins for interconnecting the plurality of links, the power transmission chain transmitting power by way of contact between opposite end faces of each of the pins and the sheave surfaces of the first and second pulleys. All the plurality of pins substantially have the same length in the longitudinal direction thereof, and the plurality of pins include plural types of pins having different sectional shapes or sectional areas as determined on a section perpendicular to the longitudinal direction thereof.

Finally, while not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the instant application, Applicants respectfully submit that independent claim 6 recites a combination of elements in a power transmission chain entrainable between a first pulley possessing conical sheave surfaces and a second pulley possessing conical sheave surfaces, the power transmission chain including plural chain friction transmission members, the power transmission chain transmitting power by way of contact between opposite end faces of each of the plural chain friction transmission members and the sheave surfaces of the first and second pulleys, the chain friction transmission members arranged along a chain longitudinal direction at predetermined space intervals. The chain includes a plurality of links each possessing

first and second through-holes arranged in the chain longitudinal direction, and a plurality of first pins and a plurality of second pins, each of the plurality of first pins and the plurality of second pins penetrates the first through-hole of one link and the second through-hole of an adjacent link thereby interconnecting the links, adjoining in a chain widthwise direction, in a manner to provide bending in the chain longitudinal direction. The first pin fixed in the first through-hole of the one link and movably fitted in the second through-hole of the other link and the second pin movably fitted in the first through-hole of the one link and fixed in the second through-hole of the other link are brought into relative movement in rolling contact thereby permitting the bending of the chain, and a locus of contact position between the first pin and the second pin is defined by an involute of a circle and the plurality of first pins includes pins of two or more different widths in the chain longitudinal direction such that the first pins and the second pins are combined to form two or more types of pairs which provide involutes of base circles having different radii. The plural chain friction transmission members include plural types of chain friction transmission members which have mutually different rigidities against force acting in the chain widthwise direction.

Applicants respectfully submit that these combinations of elements as set forth in independent claims 1, 2, and 6 are not disclosed or made obvious by the prior art of record, including Van Rooij, Anpo, and Zimmer.

At the outset, Applicants note that the for the claimed power transmission chains, noise produced by the chain during operation is effectively reduced. This enhanced noise-reduction is achieved by dispersing the frequencies of the noise caused by the friction between the opposite ends of the plurality of pins/chain friction transmission members and the sheave surfaces of pulleys. Therefore, in the power transmission chain of the present invention, it is a precondition for obtaining the aforementioned noise-reduction effect that all the plural pins/chain friction members have direct contact with the sheave surfaces of pulleys when transmitting power. This claimed relationship is not taught or suggested by the cited prior art.

While the power transmission chain disclosed in Van Rooij operates to transmit power by contact between a plurality of pins and the sheave surfaces of pulleys, Van Rooij's power transmission chain does not teach the claimed features noted above.

Specifically, Applicants respectfully submit that the pin 45 and strips 47 of Van Rooij do not correspond to Applicants claimed pins. In particular, Van Rooij specifically states at col. 4, lines 37-39 that "[t]he strips 47 of the transmission chain 31 are shorter than the pins 45 so only the pins are clamped between the cone pulley, as shown in Fig. 5." (Emphasis added). Therefore, the power transmission chain disclosed in Van Rooij has a single type of plural pins 45 in contact with the sheave surfaces of pulleys during operation for power transmission. As a result, the frequencies of the noise produced by the friction between the opposite ends of the plurality of pins and the sheave surfaces of pulleys are not dispersed, and thus the noise cannot be lowered.

Therefore, Van Rooij does not anticipate independent claims 1 and 2.

Anpo discloses a power transmission chain comprising rocker pins and joint pins having three different radii of sectional curvature, namely r_1 , r_2 and r_3 . In this power transmission chain, however, it is not the rocker pins and the joint pins that come in contact with the sheave surfaces of pulleys, but "load blocks 14" having inverted T-shaped cross sections. The respective load blocks are attached to the chain so as to surround it transversely (see Figs. 2 and 5). In other words, the power transmission chain disclosed in Anpo operates to transmit power by the contact between the load blocks 14 attached to the chain and sheave surfaces of pulleys. Consequently, the power transmission chain of Anpo clearly differs in type from that of the claimed invention, in which the plurality of pins is in contact with sheave surfaces.

Moreover, Anpo teaches only one type of the load block 14. Therefore, the frequencies of the noise produced by the friction between the opposite ends of the load blocks and the sheave surfaces of pulleys are not dispersed, and thus the noise cannot be lowered.

Therefore, Anpo does not anticipate independent claims 1 and 2. Furthermore, because Van Rooij and Anpo suffer from the same deficiency, any hypothetical combination of Van Rooij and Anpo would necessarily fail to teach or suggest all claim features of independent claim 3.

Zimmer was cited for teaching unrelated to the above-identified deficiencies of Van Rooij and Anpo. Therefore, any hypothetical combination of Van Rooij and Zimmer or Anpo and Zimmer would fail to render independent claims 1, 2, and 6 obvious.

Applicants respectfully submit that the combinations of elements as set forth in independent claims 1, 2, and 6 are not disclosed or made obvious by the prior art of record, including Van Rooij

and Anpo, for the reasons explained above. Zimmer was cited for teaching unrelated to the above-identified deficiencies of Van Rooij and Anpo. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

With regard to dependent claims 3-5 and 7-20, Applicants submit that claims 3-5 and 7-20 depend, either directly or indirectly, from independent claims 1, 2 or 6, which are allowable for the reasons set forth above, and therefore claims 3-5 and 7-20 are allowable based on their dependence from claims 1, 2, or 6, as well as for their additionally recited subject matter. Reconsideration and allowance thereof are respectfully requested.

Additional Cited References

Since the remaining references cited by the Examiner have not been utilized to reject the claims, but have merely been cited to show the state of the art, no comment need be made with respect thereto.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Chad D. Wells, Registration No. 50,875, at (703) 205-8000, in the Washington, D.C. area.


Prompt and favorable consideration of this Amendment is respectfully requested.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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